

WHAT IS CLAIMED IS:

1. A state-of-device remote monitor system comprising:

an on-the-spot area; and

a management area,

said on-the-spot area including:

an electric device;

a detector for detecting a device state of said electric device;

a first communication signal converter for converting detection data obtained by the detection of said detector into communication signals, and transmitting the communication signals; and

a controller, having a memory for storing the detection data obtained by the detection of said detector, for storing said memory with the detection data obtained by detecting the device state with said detector on the basis of a preset detection start program, and outputting the detection data stored in said memory to said first communication signal converter on the basis of a preset communication start program that runs corresponding to a storage of the predetermined detection data,

said management area including:

a second communication signal converter for converting the communication signals received from said first communication signal converter into the detection data before being converted by said

first communication signal converter;

a maintenance tool having a diagnostic/analytic program for analyzing the device state from the detection data converted by said second communication signal converter, and a maintenance database stored with data necessary for the analysis by said diagnostic/analytic program and a diagnosed result; and

a display unit for displaying the diagnosed result obtained by the analysis by said maintenance tool.

2. A state-of-device remote monitor system according to claim 1, further comprising a general-purpose network for transmitting the communication signals transmitted from said first communication signal converter to said second communication signal converter.

3. A state-of-device remote monitor system according to claim 1, wherein said first communication signal converter converts the detection data into radio signals and transmits the radio signals, and

said second communication signal converter converts the radio signals received from said first communication signal converter into the detection data before being converted by said first communication signal converter.

4. A state-of-device remote monitor system according to claim

2, wherein said on-the-spot area includes a mobile communication device for transmitting the radio signals on the basis of the communication signals converted by said first communication signal converter, and

said general-purpose network includes;

at least a base station for receiving the radio signals of said mobile communication device and converting the radio signals into the communication signals; and

a mobile communication network for transferring the communication signals converted by said base station to a public line network.

5. A state-of-device remote monitor system according to claim 1, further comprising:

a power line for supplying said electric device with electric power from a power source device; and

connecting means for connecting said power line, said controller and said first communication signal converter to each other,

said controller transmits the detection data to said first communication signal converter via said connecting means and said power line.

6. A state-of-device remote monitor system according to claim

5, further comprising:

a current transformer, provided on said power line, for taking an electric current in a non-contact manner from within said power line; and

a power source circuit for supplying the electric power to said controller on the basis of the current taken out by said current transformer.

7. A state-of-device remote monitor system according to claim 1, wherein when said on-the-spot area is within a train mounted with a train radio device for adjusting a traffic schedule, the detection data stored in said memory are wirelessly transmitted to said second communication signal converter from said train radio device by use of said train radio device as said first communication signal converter.

8. A state-of-device remote monitor system according to claim 2, further, if said on-the-spot area is within an automobile, comprising:

a mobile record terminal downloaded with the detection data stored in said memory by connecting a communication cable disconnectable from and connectable to said first communication signal converter; and

a mobile communication device, connected to said mobile

record terminal, for converting the detection data downloaded into said mobile record terminal into the radio signals and transmitting the radio signals,

said general-purpose network including at least a base station for receiving and converting the radio signals of said mobile communication device into the communication signals; and

a mobile communication network for transferring the communication signals converted by said base station to a public line network.

9. A state-of-device remote monitor system according to claim 1, further, if said on-the-spot area is within an electric car mounted with a battery for supplying the electric power, comprising:

a power source/communication cable disconnectable from and connectable to said battery, connected to a power source; and

a power control device for charging said battery with the electricity from said power source device by connecting said power source/communication cable to said battery, downloading with the detection data stored in said memory, and transferring the detection data to said general-purpose network.

10. A state-of-device remote monitor system according to claim 2, wherein said controller does not include said memory, detects a device state through said detector on the basis of a preset

detection start program if a communication route between said first communication signal converter and said general-purpose network is established, and outputs the detection data to said first communication signal converter on the basis of a preset communication start program in accordance with the detection.

11. A state-of-device remote monitor system according to claim 1, wherein said maintenance tool outputs a state-of-device detection start command of the electric device to said controller at a predetermined time, and

said controller executes the detection start program on the basis of the state-of-device detection start command.

12. A state-of-device remote monitor system according to claim 1, wherein if said controller detects the device state through said detector with a fixed period, said maintenance tool outputs to said controller a command to change the detection period of said detector in accordance with a diagnosed result from the detection data on the basis of a preset program, and

said controller detects the detection data from said detector with the period changed based on the detection period change command.

13. A state-of-device remote monitor system according to

claim 1, further comprising a mobile communication device for issuing a piece of abnormality information upon receiving the same abnormality information,

said maintenance tool transmitting, if the diagnosed result from the detection data shows the abnormality, the abnormality information to said mobile communication device.

14. A state-of-device remote monitor system according to claim 13, wherein said maintenance tool includes a maintenance procedure database stored beforehand with plural items of maintenance procedure data corresponding to a variety of abnormal states, extracts the maintenance procedure data corresponding to the abnormal information from said maintenance procedure database if the diagnosed result from the detection data shows the abnormality, and transmits the extracted maintenance procedure data together with the abnormal information to said mobile communication device.

15. A state-of-device remote monitor system according to claim 1, further comprising a user's own maintenance terminal connected to said general-purpose network and issuing the data received via said general-purpose network,

said maintenance tool being managed by an in-charge-of-maintenance company in charge of monitoring a device state of the

electric device and outputting the diagnosed result based on said diagnostic/analytic program to said maintenance terminal.

16. A state-of-device remote monitor system according to claim 15, wherein said maintenance tool includes a device database stored beforehand with device specifications of a variety of electric devices, and a maintenance procedure database stored beforehand with plural items of maintenance procedure data corresponding to the variety of abnormal states, and outputs to said maintenance terminal the device specification corresponding to the analyzed electric device and the maintenance procedures corresponding to the diagnosed result together with the diagnosed result based on said diagnostic/analytic program.

17. A state-of-device remote monitor system according to claim 13, wherein said mobile communication device is owned by a maintenance worker of the in-charge-of-maintenance company in charge of monitoring the device state of the electric device, said maintenance tool is managed by the in-charge-of-maintenance company and includes:

a position database stored with position data of said mobile communication device; and

a maintenance worker invoke program for extracting, if the diagnosed result based on said diagnostic/analytic program shows

the abnormality, said mobile communication device proximal in position to the electric device diagnosed abnormal from said position database and calling up said mobile communication device.

18. A state-of-device remote monitor system according to claim 17, wherein said maintenance tool includes a device database stored beforehand with device specifications of a variety of electric devices, and a maintenance procedure database stored beforehand with plural items of maintenance procedure data corresponding to the variety of abnormal states, and

said maintenance worker invoke program calls up said mobile communication device and provides said mobile communication device for the maintenance worker with the device specifications corresponding to the electric device diagnosed abnormal and the maintenance procedures corresponding to the monitored result.